

About PAPILIO (NEW SERIES)

By James A. Scott

This entomological journal covers the systematics and taxonomy and biology of butterflies, mostly from Colorado. There are about 700 species of butterflies in North America, and about 270 in Colorado, and new discoveries are made every year on the Colorado species. Systematics is the study of the kinds of butterflies that exist on our planet, and taxonomy involves the names of butterflies, including the description and naming of species new to science. The word *Papilio* comes from the scientific name *Papilio* of Swallowtail Butterflies, very large butterflies common in Colorado. I started *Papilio* (New Series) in 1981 when I was working on a book on the biology of North American butterflies for Stanford Univ. Press (see Scott 1986 in the list of publications below) and found several dozen butterflies that needed to be in the book but lacked names, so I decided to name them in one publication rather than go through the onerous process of getting several dozen separate papers published. (This first issue later inspired Dr. Thomas Emmel to publish a large book of numerous papers on butterfly classification titled "Systematics of Western North American Butterflies".) I had published papers in prestigious journals before (in *Nature*, *Ecology*, several in *Theoretical Population Ecology*, several in *Journal of Animal Ecology*, *Biotropica*) and had published many others in various entomology journals and books, but I did not want to go through the usual aggravation of publishing scientific papers, including the year-long delays, dealing with printer's errors (journals sometimes printed whole sections twice of some of my papers, etc.), correcting mistake-filled proofs, paying page charges to publish papers plus more charges for reprints, etc. After getting a PhD I had thought that publications would further one's career and lead to greater income, but I found that the process of scientific publication is actually a vanity press, in which authors must pay to publish their work, and the more you pay, the more prestigious the journal you can get your paper into (most scientific papers in the most prestigious journals are subsidized by government grant money to pay for page charges and reprint charges). So I established *Papilio* (New Series) to enable rapid publication of scientifically sound papers, which would be sold at a price that would prevent financial loss. The original *Papilio* was a journal edited and managed by Eugene Aaron and Henry Edwards from 1881-1884 when it closed because expenses exceeded subscription income, so to distinguish the new journal from that one I added "(New Series)". New issues were published at irregular times, hence the name "New Series" rather than "Journal". Issues were mailed free to major museums such as the British Museum of Natural History, while other persons were required to pay. This monetary system worked well for several decades, but in this new age most people want information free on the internet and refuse to pay anything, so it is now time to make all the issues available for free download.

I authored the early issues of *Papilio* (New Series) myself, but gradually more scientists contributed to the issues, so about a dozen authors have published in the series so far.

It is my desire that new issues will continue to be published, at irregular intervals, which will cover Lepidoptera (butterflies, and perhaps moths as well). New issues must be scientifically sound and must cover species found in Colorado or species under study by people at Colorado State University, while the format chosen can vary somewhat from strict requirements in standard scientific biological publications if that format effectively communicates the information.

When doing my Ph.D. thesis on the behavior of butterflies, I found that male butterflies approach other butterflies or insects or blowing objects mainly to determine by visual and chemical means whether that object is a female ready for mating. Many people in books and

papers just ridiculously assume that the male is fiercely protecting its territory when it approaches others. I realized that a cartoon caricature of fierce fighting butterflies would be a good tool to let people know that butterflies are not fierce fighters but are actually about the least-equipped to fight of any animal on earth, with their fragile bodies and lack of weapons. So that cartoon appeared in *Papilio* (New Series) #14 with an explanation of butterfly mate-locating behavior and territoriality. This project led to a fuller explanation of mate-locating and territoriality (Scott 2010a below in the list of my publications) with new precise terms for describing mate-locating behavior in insects.

While doing research on butterflies, I gradually realized that there are problems faced by entomologists (who are scientists who study insects), both in studying and naming butterfly species, and in doing conservation work on them. Some “species” in nature are actually not easily definable as they interbreed with other species, and it is difficult to determine whether they are one or several species, or whether their populations are like a pretzel, interbreeding with others where the arms join, and remaining distinct elsewhere. These problems were explored especially in *Papilio* (New Series) #12, wherein the “stenchospecies” and “bookkeeping species” was used to sarcastically indicate the considerable degree of frustration that these problems cause for scientists. The Principle of Priority causes many problems, because scientists must expend considerable time and money to research all the old names of butterflies before naming a new one, so in some *Papilio* (New Series) issues I discussed those problems (with a cartoon in issue #18 visualizing the problems in caricature), and offered solutions. This led directly to several petitions that I submitted to the International Commission on Zoological Nomenclature to solve those problems; if those petitions succeed, there will be several new articles in the nomenclatural Code that will make it easier for taxonomists to get rid of old bad names of species, and for the first time we will be able to correct misleading inappropriate scientific names. On the conservation side, I pointed out that conservation of insects requires preservation of their habitat, in the proper successional state, whereas all the laws in the United States wrongly assume that insects can be regulated by setting hunting limits and hunting seasons using deer laws that regulate our deer hunters. *Papilio* (New Series) #17 explains this problem and offers solutions. As a forum to discuss problems and solutions in entomology, the small “*Papilio Bonus*” sections were introduced to discuss entomological problems, and cartoons were found to be the best way to communicate some of them. After a while, the “*Papilio Bonus*” included some cartoons that were meant mostly to be funny as well as informative. The “Dr. Bob” cartoon series was partly inspired by the Gillette Museum at Colorado State University, which needs money for a new building because the insects preserved there are now cramped for space, so in some of the cartoons Dr. Bob gets \$ and builds and expands his own bug museum. Some of the cartoons in the Dr. Bob series were inspired by happenings in the Gillette Museum also, such as the cartoon panel about stoneflies, because considerable research on aquatic Colorado stoneflies is conducted there (I can reassure the reader that noone gets drunk or stoned in the Gillette Museum). The giant bugs inhabiting the fictitious Land of Humong were partially inspired by the book on Big Bugs written by several prominent Fort Collins entomologists. Some people think that cartoons are unprofessional, but they are effective tools of communication (especially on the sarcastic side), and can offer an interesting diversion from the details of insects that some people might find tedious.

The mindset in this series, of occasionally pinpointing problems in entomology and offering solutions, inspired a larger project on the problems facing the United States and the world, which led to the book *FIXING AMERICA*, by OLIVER WYKER (amazon.com), which offers

solutions to the major problems now afflicting the U.S. That is a fine book, written by a Ph.D. scientist, which deserves to be read by people who care and want to help. Sometimes when I study butterflies, I wonder why I am doing so, when there are so many problems afflicting America, from financial insolvency, inadequate health care system, global warming, stock market collapse, the population explosion, obesity and diabetes, etc. etc. But I always return to studying butterflies because they are so fascinating, and their study does provide valuable information regarding conservation of insects and the effects of global warming, etc. And sometimes the study of butterflies can expand and offer good contributions to other fields of science. My paper on butterfly visits to flowers (Scott 2014 in the list of my publications below) provides the only modern compilations of the pollination of Colorado plants, which should be useful for botanists and gardeners as well as butterfly enthusiasts, maybe even to farmers who are worried about pollination of their crops and declining numbers of bees.

So, admire the fascinating lives and beauty of butterflies, study them as great examples of the diversity and majesty of life on earth and the damage to animals and plants caused by development and global warming, and read the book *Fixing America* and similar books that offer solutions, and work with all of us to make America and the whole earth a better place.

ISSUES OF PAPILIO (NEW SERIES) April 2014

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1. New Papilionoidea and Hesperioidea from North America. James A. Scott, 1981, 1-12, originally \$2.00, now free download.
2. The life history and ecology of an alpine relict, *Boloria improba acrocnema* (Lepidoptera: Nymphalidae), illustrating a new mathematical population census method. James A. Scott, 1982, 1-12, originally \$2.00, now free download.
3. Distribution of Caribbean Butterflies. James A. Scott, 1986, 1-26, originally \$2.50, now free download.
4. Larval hostplant records for butterflies and skippers (mainly from western U.S.), with notes on their natural history. James A. Scott, 1986, 1-37, originally \$3.00, now free download.
5. The courtship of *Phyciodes*, and the relationship between *Phyciodes tharos tharos* and *Phyciodes tharos morpheus* (= *pascoensis*) in Colorado. James A. Scott, 1986, 1-8, originally \$1.00, now free download.
6. Hostplant records for butterflies and skippers (mostly from Colorado) 1959-1992, with new life histories and notes on oviposition, immatures, and ecology. James A. Scott, 1992, 1-185, originally \$14.00, now free download.
7. Biology and systematics of *Phyciodes* (*Phyciodes*). James A. Scott, 1994, 1-120, originally \$9.00, now free download.
8. *Speyeria hesperis* and *Speyeria atlantis* are separate species. James A. Scott, Norbert G. Kondla, and Stephen M. Spomer, 1998, 1-31, originally \$3.00, now free download.
9. A new *Celastrina* from the eastern slope of Colorado. James A. Scott & David M. Wright, 1998, 1-15, originally \$2.00, now free download.
10. *Phyciodes* (*Phyciodes*): new discoveries, new subspecies, and convergence. James A. Scott, 1998, 1-42, originally \$4.00
11. New western North American butterflies. James A. Scott & Michael S. Fisher, 1998, 1-12, originally \$1.00, now free download.

12. Taxonomic Studies and New Taxa of North American butterflies. James A. Scott, Michael S. Fisher, Norbert G. Kondla, Steve Kohler, Crispin S. Guppy, Stephen M. Spomer, and B. Chris Schmidt. 2006. 74 p. & 6 color pl., originally \$14.00, now free download.
13. *Phyciodes* (*Phyciodes*): More Progress. James A. Scott. 2006. 38 p., originally \$7.00, now free download.
14. Butterfly Hostplant Records 1992-2005, with a treatise on the evolution of *Erynnis*, and a note on new terminology for mate-locating behavior. James A. Scott. 2006, 74 p., originally \$10.00, now free download.
15. Building the California Academy Drawer. James A. Scott, 2006, 40 p., originally \$6.00, now free download.
16. Portable (Six Drawer) Cabinets for California Academy Drawers. James A. Scott, 2006, 10 p., originally \$1.50, now free download.
17. Proposals for a new INSECT STUDY, COMMERCE, AND CONSERVATION LAW that deregulates dead insects, and proposals for fixing the Endangered Species Act as applied to insects. James A. Scott, 2006, 17 p., originally \$3.50, now free download.
18. Geographic variation and new taxa of western North American butterflies, especially from Colorado. James A. Scott & Michael S. Fisher, with some parts by David M. Wright, Stephen M. Spomer, Norbert G. Kondla, Todd Stout, Matthew C. Garhart, & Gary M. Marrone, 2008, 84 p., 10 figs., 5 color plates, originally \$9.00, now free download.
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20. Biological Catalogue of North American butterflies. James A. Scott, 2008, 51 p., originally \$5.00, now free download.
21. Scott, James A., & Michael S. Fisher. 2014. *Argynnis* (*Speyeria*) *nokomis nokomis*: geographic variation, metapopulations, and the origin of spurious specimens. Papilio (New Series) #21, 32 p., free pdf at <http://dspace.library.colostate.edu>, click on Colorado State Univ., search for Papilio (New Series)
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25. Scott, James A. 2016 (March). Ernest J. Osler, 1858-1944: his travel and collection itinerary, and his butterflies. Papilio (New Series) #25: 40 p. Free pdf at <http://dspace.library.colostate.edu>, click on Colorado State Univ., search for Papilio (New Series).

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